

## **Section 10 - West Colorado River Basin Agricultural Water**

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# Section 10

## West Colorado River Basin - Utah State Water Plan

# Agricultural Water

### 10.1 Introduction

This section describes the agricultural industry in the basin as well as its problems, needs and future outlook. The success of the agricultural industry is dependent on the market, climate and the water supply.

Agriculture has a direct impact on the economy of the area. Spinoff from agriculture helps support employment and production in other sectors along with providing economic diversity. Agriculture also adds environmental diversity to the basin by providing open green space and improving watershed qualities.

### 10.2 Background <sup>18, 19, 53</sup>

Irrigated cropland amounts to 91,924 acres, less than 1 percent of the total basin area of 10.5 million acres. Much of the basin contains arable soils, but they cannot be cropped because of the lack of irrigation water or insufficient precipitation. Typically, the irrigated cropland is in the valley bottoms where the land is relatively flat. Rangeland is found from the low-lying desert areas to the high mountain forest lands.

The number of farms has decreased slightly over the years, and this has been accompanied by an increase in the average farm size. This reflects the need for more acreage to maintain a viable farm unit. The average farm in Carbon County contains about 1,600 acres, while Emery, Wayne and Garfield counties farms contain about 550 acres. These

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**Agriculture to support livestock production plays a major role in the basin's economy.**

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amounts include rangeland and irrigated croplands. Over the long term, the existing irrigated acreage base will decline slightly due to increased population pressures while some new lands (several thousand acres) may be brought under irrigation in the Green River and western Wayne County areas.

Cow-calf production is currently the major farm-related industry. Also, dairies are located in Ferron in Emery County and near Loa in Wayne County. Most of the crops grown, along with pasture and rangelands, are used to support these activities.



Alfalfa fields near Henrieville

### 10.3 Agricultural Lands<sup>9, 18, 19</sup>

Private agricultural lands cover only a small portion of the West Colorado River Basin. The lands used for grazing are under federal administration and cover most of the basin.

#### 10.3.1 Irrigated Cropland

The Division of Water Resources completed a water-related land use survey of West Colorado River Basin cropland areas in 1998 and determined there are 91,924 acres of irrigated cropland, plus an additional 8,350 acres that are idle. The major crops grown include pasture, 45 percent; alfalfa, 39 percent; small grains, 7 percent; grass hay, 4 percent; and corn silage, 3 percent. The irrigated land by crop is shown in Table 10-1, and the locations are shown in Figure 10-1. The total farmed acreage in 1967 was just over 105,000 acres. Farmed acreages have decreased 5 percent over the past 30± years because of salinity problems and the purchase of irrigation water shares for the power plants in Emery County.

Table 10-2 shows the past, present and future irrigation water use in the basin. This use will remain fairly constant in the future. Some lands will be taken out of production as existing water supplies are transferred to other uses. In some areas (Green River and eastern Wayne County), new replacement lands may be developed if agricultural economics justify the investment and federal permits can be acquired.

#### 10.3.2 Dry Cropland

Very little dry cropland (non-irrigated) exists in the basin. However, about 5,000 acres of irrigated pasture lands receive water only at the beginning of the irrigation season and remain dry throughout the remainder of the season. Most of these are grazed by livestock and wildlife.

#### 10.3.3 Rangelands

Over 70 percent the West Colorado River Basin area is used for grazing purposes. Some of this land is forested, but most is desert-type rangeland. Much of the grazed area is located in the lower elevations, making it suitable for winter grazing. Permitted

grazing on public lands declined after the 1940s, but since then it has remained fairly stable. Lately, however, there have been some slight declines in many areas. Considerable work has been done in localized areas to increase livestock and wildlife forage on rangelands with practices such as pinyon-juniper and brush chaining and re-seeding with grass. Management practices have been improved over the years. Despite this, federal land managers on national forest and BLM lands continually reduce the cattle allotments threatening the basin's cattle ranching economic stability.

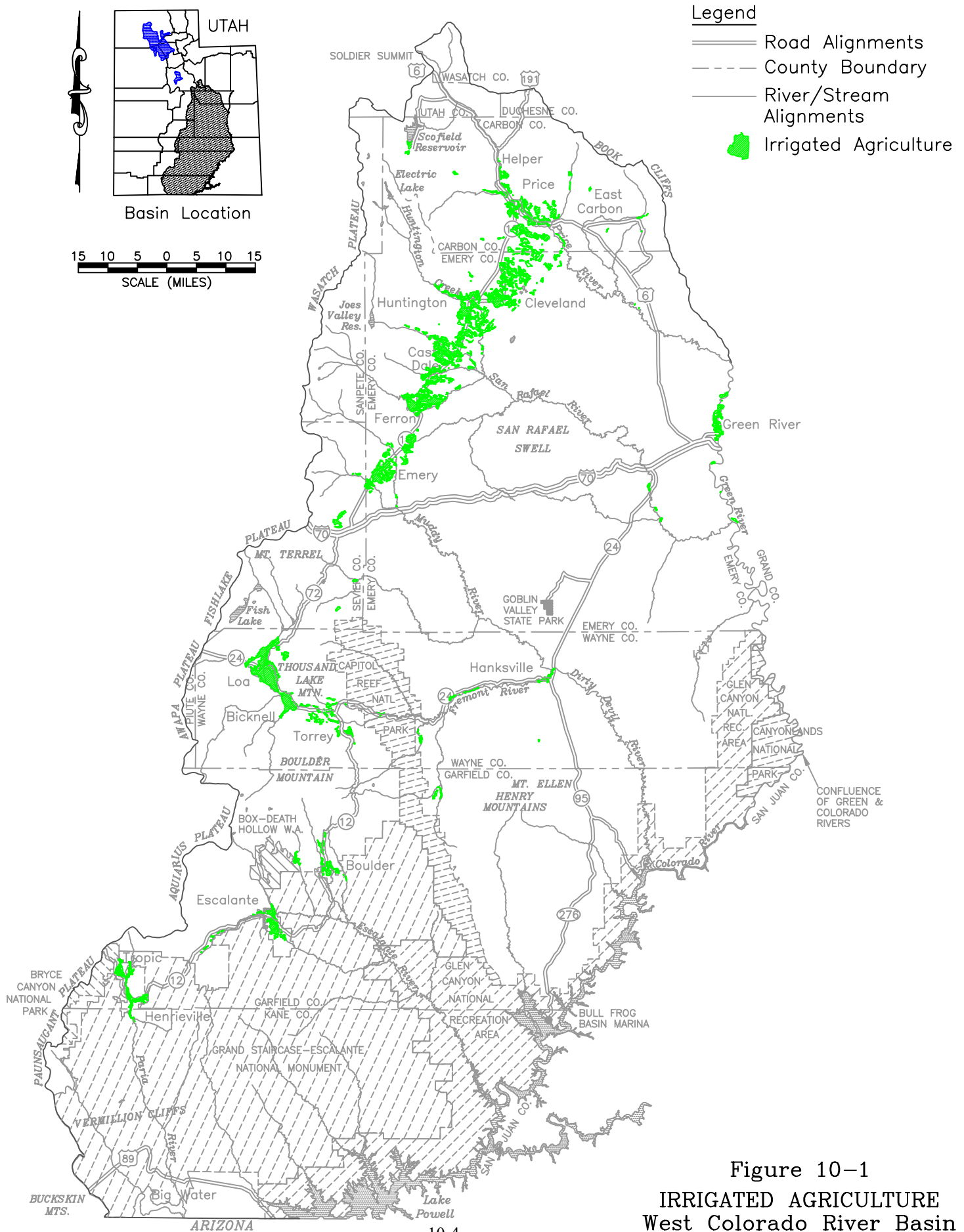
### 10.4 Watershed Management<sup>25</sup>

Watershed management is the protection, conservation and use of all the natural resources of a specific watershed in such a way as to keep the soil mantle in place and productive. It also assures water yield and water quality meet the desired uses. If not properly protected, watershed lands are readily damaged from erosion, floods, sediment and fire. Following are some of the treatment measures used to keep the watersheds a viable producer of resources:

- Livestock and wildlife grazing management.
- Vegetation improvement, improved cropping sequences, and improved irrigation systems and management are important.
- Structural measures, such as contour trenching, debris basins, gully control and stream channel stabilization, all in conjunction with vegetation improvement and grazing management.
- Spring areas protected from wildlife and livestock by fencing. Watering facilities provided outside the fenced area.

Erosion is a problem in parts of the basin, particularly where sparse plant cover provides little protection to the soil. Intense thunderstorms frequently produce flash floods, eroding the landscape. Heavy rains soon after fires also cause increased erosion. In these areas, a majority of the erosion is geologic or background, but in some areas it has been accelerated by man's activities.

Table 10-1 Irrigated Land By Crops									
Crop	County								Total
	Utah	Carbon	Sanpete	Emery	Grand	Sevier	Wayne	Garfield	Kane
<b>Surface Irrigated Crops</b>									
Fruit/Nursery	0	21	0	59	0	0	34	53	0
Small Grain	0	655	0	2,741	27	110	2,671	174	18
Corn Silage	0	749	0	2,088	212	0	33	0	0
Vegetables	0	14	0	116	25	0	0	0	0
Alfalfa	0	5,222	0	14,648	629	296	9,832	5,222	162
Grass Hay	0	359	0	2,778	9	0	147	257	0
Grass/Turf	0	0	0	0	10	0	0	0	0
Pasture	33	5,043	0	23,098	276	0	2,733	1,452	36
Fallow	0	233	0	622	56	7	46	182	0
<b>Surface Subtotal</b>	<b>33</b>	<b>12,296</b>	<b>0</b>	<b>46,150</b>	<b>1,244</b>	<b>413</b>	<b>15,496</b>	<b>7,340</b>	<b>216</b>
<b>Sub-Irrigated Crops</b>									
Sub-Irrigated Pasture	0	387	0	4,563	0	403	3,322	8	53
<b>Total</b>	<b>33</b>	<b>12,683</b>	<b>0</b>	<b>50,713</b>	<b>1,244</b>	<b>816</b>	<b>18,818</b>	<b>7,348</b>	<b>269</b>



<b>Table 10-2</b> <b>Past, Current and Projected Irrigated Cropland Water Use</b>			
Year	Area (acres)	Diversions (acre-feet)	Depletions (acre-feet)
1991	89,064	303,000	165,900
1998	91,924	295,050	161,700
2020	93,000	281,000	179,000

### 10.5 Agricultural Water Problems and Needs

The West Colorado River Basin does not have a full water supply for all the irrigable lands. Irrigation of crops on presently irrigated lands depletes nearly 162,000 acre-feet of water annually. If all the existing lands with a valid water right were



Sprinkler Irrigation in Wayne County

to receive a full water supply, an additional 264,000 acre-feet would be depleted (see Section 5, Table 5-21). The water deficit can be reduced in many cases by reducing seepage and evaporation and improving irrigation efficiencies. But it is not possible to salvage enough water from improved irrigation practices to meet the needs of all cropland acres.

In some areas, particularly where rangeland is used for grazing, water quality may be impacted where livestock and wildlife concentrate for watering. There is a need to improve and provide watering facilities to better distribute livestock and wildlife.

### 10.6 Agricultural Water Conservation and Development Alternatives

One way of realizing additional monetary benefits from the existing water supply is to improve water use efficiency. Water use efficiency can be evaluated in two parts: off-farm conveyance and on-farm application. Delivery systems can be upgraded by lining high seepage areas in canals with concrete or other material or by installing pipelines. Installing or upgrading diversion structures and effective measurement and management controls can also increase efficient use of water.

Many of the irrigation companies have already completed or planned projects to improve overall irrigation efficiencies. These projects include reducing seepage losses by improving system management through real-time monitoring, lining canals, and installing pipelines. Projects to reduce on-farm losses include selecting a different irrigation method or improving an existing method. Operation and maintenance procedures have been recommended through soil conservation district plans for some of the irrigation companies.

An opportunity exists to do this with the Tropic and East Fork canals in Garfield County. It has been estimated that about one third of the water diverted at Tropic Reservoir is lost to seepage.



Another opportunity exists to pipe some of the small ditches on Boulder Mountain above the town of Boulder in Garfield County. This would reduce seepage on these ditches.

Incentives to improve efficiencies and conserve water are many. Where there is a shortage of irrigation water, increased efficiencies can make water go farther and increase the number of acres with a full supply. Increasing irrigation efficiencies can also reduce the cost of irrigation. By applying less water to irrigate crops, there will be less deep percolation into the groundwater reservoir. This will reduce leaching of salts and help maintain a good quality groundwater. Financial incentives are available through several state and federal programs. See Section 8 for more information on funding.

The joint Bureau of Reclamation-Natural Resources Conservation Service Price-San Rafael Salinity Control Program is an excellent opportunity for farmers in Carbon and Emery counties to take advantage of federal matching funds to convert to sprinkler irrigation which will increase on-farm irrigation efficiencies. This program will also aid irrigation companies to line and pipe canals which will help increase the conveyance efficiency. Section 9 explains this program in more detail. ●

